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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,957

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Isao Hayafune

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09/03/2008

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EXAMINER

FRIEDHOFER, MICHAEL A

ART UNIT

PAPER NUMBER

2832

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,957	<b>Applicant(s)</b> HAYAFUNE, ISAO	
	<b>Examiner</b> Michael A. Friedhofer	<b>Art Unit</b> 2832	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/20/06, 5/29/07, 7/11/07</u> .                               | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 5-8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata et al in view of Kawaguchi et al.

Yamagata et al discloses in the figures a dome shaped contact composed of an elastic conductive plate comprising a first dome portion 1b bulged in the direction opposite to the direction of pressing and a first spacer portion 1a disposed along the outer periphery of the first dome portion. The first spacer portion is conical and tapered in the bulge direction. The dome portion has protrusions 1g that extend in the direction opposite to the bulge direction. Sheet 5 fixes the elastic plate to the board 3. Contacts 4a and 4b are placed opposite the dome contacts. Yamagata et al does not disclose plural dome portions.

Kawaguchi et al teaches a multi-step operation electrical switch having a contact formed on a board 2 and a dome-shaped elastic conductive plate 1. The plate is deformed to come into electrical contact with the contact when the elastic plate is pressed, and the plate is restored to the initial shape and electrically disconnected from the contact when a pressing force is removed. The switch comprises a first dome portion; a first spacer portion 1e disposed along the outer

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periphery of the first dome portion; a second dome portion 1c disposed at the center of the first dome portion with a second spacer portion interposed between the first and second dome portions. The radius of curvature of the second dome portion is smaller than the radius of curvature of the first dome portion. The ratio of the diameter of the second spacer portion to the diameter of the first spacer portion is between .4 and .6.

It would have been obvious to one of ordinary skill in the art to apply the teachings of Kawaguchi to Yamagata et al to form the contact as a multi-step switch having two dome portions and spacer portions because this is for the purpose of providing a switch usable to operate multiple functions and/or devices keeping the size of the device small.

3. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata et al as modified by Kawaguchi et al as applied to claims 1, 2, 5-8, and 14 above, and further in view of Masuda.

Yamagata et al as modified by Kawaguchi et al teaches all of the claimed limitations with the exception of the surface of the plate facing in the direction opposite to the bulge direction is plated with nickel or with silver and nickel.

Masuda teaches a dome shaped contact in which the surface of the plate facing in the direction opposite to the bulge direction is plate with nickel or with silver and nickel.

It would have been obvious to one of ordinary skill in the art to apply the teachings of Masuda to Yamagata et al as modified by Kawaguchi et al to form

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the contact surface of the dome contact with nickel or with silver and nickel because this provide a good conductive surface while a cheaper and stronger metal may be utilized for the rest of the dome.

4. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata et al as modified by Kawaguchi et al as applied to claims 1, 2, 4-8, and 14 above, and further in view of Yoshimura et al.

Yamagata et al as modified by Kawaguchi et al discloses all of the claimed limitations with the exception of the opening formed in the first dome portion.

Yoshimura et al teaches openings in the formed portion and parts of the edge of the opening is bent in the opposite direction opposite to the direction in which the first dome portion bulges to form a protrusion that comes into contact with the first contact when the first dome portion is depressed.

It would have been obvious to one of ordinary skill in the art to apply the teachings of Yoshimura et al to Yamagata et al as modified by Kawaguchi et al to form openings in the dome portion a part of the edge of the opening being bent because this is for the purpose of adjusting the contact pressure and the amount of force required for operation of the switch.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagata et al as modified by Kawaguchi et al as applied to claims 1, 2, 5-8, and 14 above, and further in view of Robinson et al.

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Yamagata et al as modified by Kawaguchi et al discloses all of the claimed limitations with the exception of an air release opening formed in the board or sheet.

Robinson et al teaches a dome switch in which the sheet or board includes an air release opening.

It would have been obvious to one of ordinary skill in the art to apply the teachings of Robinson et al to Yamagata et al as modified by Kawaguchi et al to include an air release opening because this is for the purpose of ensuring that air trapped under the dome does not act as a block to the flexing of the dome increasing the amount of pressure required to operate the switch.

***Allowable Subject Matter***

6. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Martin, Nishida, Mitsugi et al, Dahlstrom, Teruyama et al, Urushibata, Asada, and Sano et al teach various structure for creating a dome switch and/or a multi-step operation electrical switch.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Friedhofer whose telephone number is 571-272-1992. The examiner can normally be reached on Mon-Fri 6:00 - 2:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael A. Friedhofer  
Primary Examiner  
Art Unit 2832

/Michael A. Friedhofer/  
Primary Examiner, Art Unit 2832